Beneficial Use Reconnaissance Program

2007 Annual Work Plan

For Streams

Idaho Department of Environmental Quality

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Abstract

In 1993, the Idaho Division (now Department) of Environmental Quality (DEQ) embarked on a pilot monitoring program, the Beneficial Use Reconnaissance Project (now Beneficial Use Reconnaissance Program [BURP]) aimed at integrating biological monitoring with physical habitat assessment to characterize stream integrity and the quality of Idaho's waters. The program has been implemented Statewide since 1994. DEQ's past monitoring and assessment practices and the U.S. Environmental Protection Agency's (EPA's) rapid bioassessment protocols (RBPs) provided the foundation for BURP monitoring protocols. The purpose of BURP is to assist in determining the existing uses and beneficial use support status of Idaho's water bodies. The purposes of annual BURP work plans are to provide background information about the program and list program objectives for a specific year. A companion to this work plan, the *Beneficial Use Reconnaissance Program Field Manual for Streams)* describes the methods used in BURP. Centralized crew training will be conducted out of the DEQ Grangeville Satellite Office area. Safety will be emphasized during the training. The objectives for BURP in 2007 are to 1) monitor long-term reference trend sites, 2) fill in data gaps with an emphasis on unassessed assessment units) 3) complete the stated pilot project and 4) continue probabilistic site selection design.

The Boise, Coeur d'Alene, Idaho Falls, Lewiston, Pocatello, and Twin Falls DEQ Regional Offices will each have a sampling crew for the 2007 season. The field season will begin July 1 and end in September 2007. Current forecasts are for streamflows below average throughout most of the State. Each crew will sample approximately 50-75 stream sties. Current estimates are that DEQ will monitor approximately 450 BURP stream sites during the 2007 season.

Introduction

Regulatory Framework (Clean Water Act)

The history of the current regulatory framework for clean water programs in the United States began with the Water Pollution Control Act of 1948 (Public Law 80-845) (Water Environment Federation 1987). This was the first comprehensive statement of federal interest in clean water programs. In 1972, the U.S. Congress passed Public Law 92-500, the Federal Water Pollution Control Act, more commonly known as the Clean Water Act (CWA) (Water Environment Federation 1987). The goal of the act was to restore and maintain the chemical, physical, and biological integrity of the nation's waters (Water Environment Federation 1987). An amendment passed in 1977 stated one goal as the protection and management of waters to ensure swimmable and fishable conditions. This goal, along with the 1973 goal to restore and maintain chemical, physical and biological integrity, relates water quality to more than just chemical characteristics. The CWA and the programs it has generated have changed over the years as experience and perceptions of water quality have changed. The CWA has been amended 15 times, most significantly in 1977, 1981, and 1987.

The federal government, through the U.S. Environmental Protection Agency (EPA), assumed the dominant role in defining and directing water pollution control programs across the nation. DEQ implements the CWA in Idaho while the EPA provides oversight of Idaho's fulfillment of CWA requirements and responsibilities. DEQ is charged (Clean Water Act, CRF, 39:3601) with providing consistent water body monitoring and assessment methods (Grafe et al. 2002). Standardized procedures and DEQ monitoring protocols provide this consistency. The assessment methods used in the State (Grafe et al. 2002) determine if a water body is supporting or not supporting beneficial uses (see Table 1) such as aquatic life. The Idaho *Water Quality Standards and Wastewater Treatment Requirements* are the rules concerning beneficial uses and associated criteria (State of Idaho, Administrative Rules, 58.01.02). The Idaho water quality standards consist of three parts: 1) beneficial uses, 2) numeric and narrative criteria, and 3) anti-degradation. Beneficial uses are described in more detail below.

Table 1. The beneficial use categories of Idaho water as specified in the Idaho water quality standard (State of Idaho, Administrative Rules, 58.01.02)

Beneficial Use Category	Beneficial Uses
Aquatic Life Support	Cold Water Biota, Salmonid Spawning, Seasonal Cold Water Biota, Warm Water Biota, Modified
Contact Recreation	Primary (swimming), Secondary (boating)
Water Supply	Domestic, Agricultural, Industrial
Other	Wildlife Habitat, Aesthetics, Special Resource Waters

History of the Beneficial Use Reconnaissance Program

In 1993, DEQ embarked on a pilot project known as the Beneficial Use Reconnaissance Project (now known as the Beneficial Use Reconnaissance Program) aimed at integrating biological monitoring with physical habitat assessment to characterize stream integrity and the quality of the water (McIntyre 1993). This project was also developed to meet the CWA requirements of monitoring and assessing biology and developing biocriteria. This pilot relied heavily on protocols for monitoring physical habitat and macroinvertebrates developed by Idaho State University and DEQ in the early 1990s. It closely followed the *Rapid Bioassessment Protocols for Use in Streams and Rivers: Benthos Macroinvertebrates and Fish* developed by EPA (Plafkin et al. 1989). Idaho's Surface Water Quality Monitoring is based on watersheds. The watersheds are grouped into hydrologic units, identified by hydrologic unit codes (HUCs) (Figure 1).

This project was an attempt to use the best science and understanding available to characterize water quality based on biological communities and their attributes. Because of the success of the 1993 pilot, DEQ decided to expand the project statewide in 1994 (McIntyre 1994; Steed and Clark 1995). BURP has remained in use statewide since 1994 (Idaho Division of Environmental Quality 1995, Beneficial Use Reconnaissance Project Technical Advisory Committee 1996, 1997, 1998, 1999). BURP is the ambient monitoring strategy for the State of Idaho at this time.

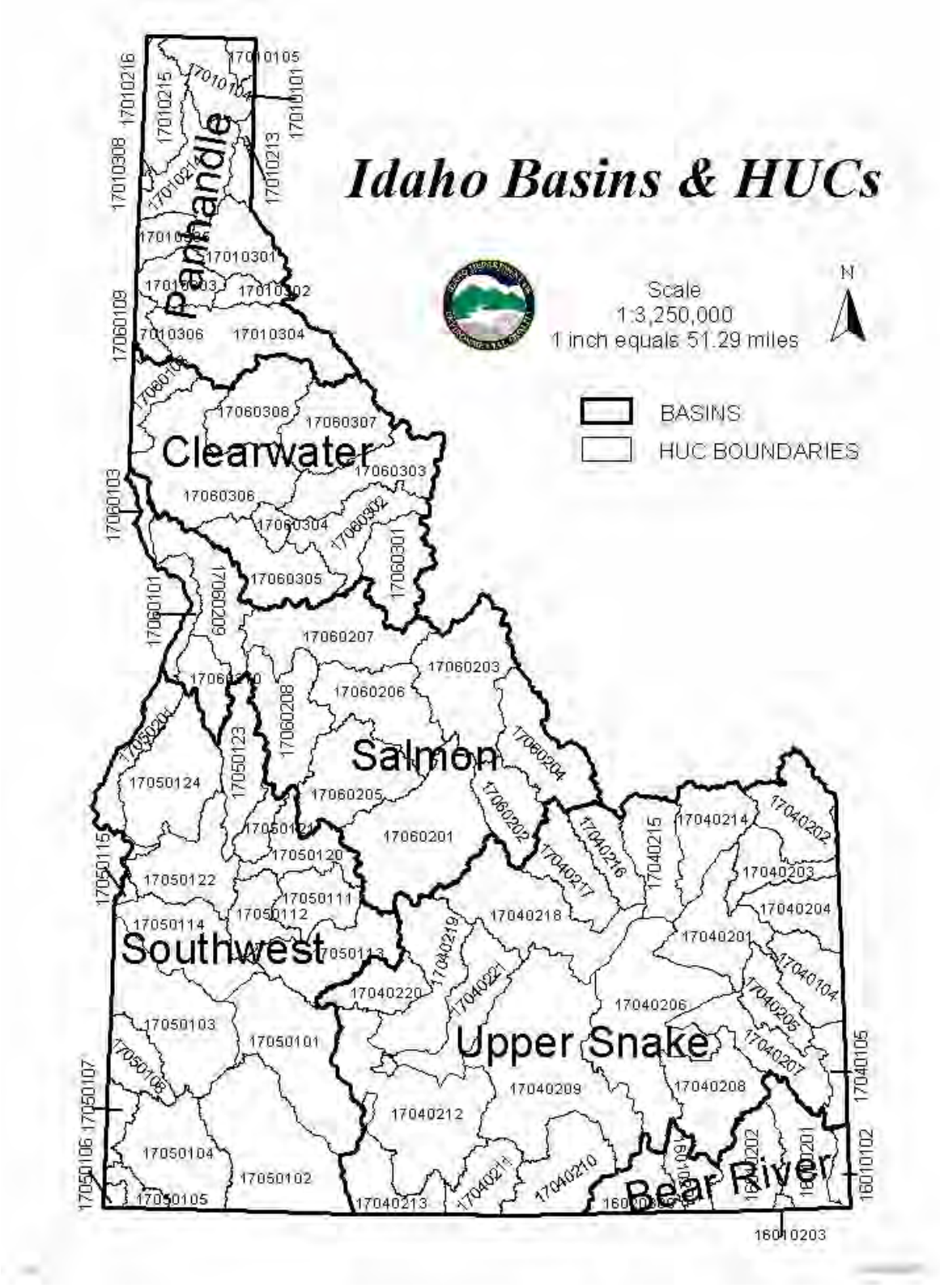
BURP monitoring was greatly reduced for the 2000 field season in order to revise the monitoring and assessment documents and to begin assessment of collected data. A final assessment document was created for the purpose of assessing these data (Grafe et al. 2002). Also in 2000, the *Beneficial Use Reconnaissance Project* was renamed the *Beneficial Use Reconnaissance Program* to emphasize its importance as a permanent DEQ monitoring program. By the end of the 2005 BURP season, over 6,000 stream sites have been sampled in Idaho making DEQ a national leader in monitoring for bioassessment.

Overview of Rapid Bioassessment

Barbour et al. (1999) define biological assessment as "an evaluation of the condition of a waterbody using biological surveys and other direct measurements of the resident biota in surface waters." The concept of "rapid bioassessment" resulted from a report by EPA, which suggested a restructuring of monitoring programs at that time (U.S. Environmental Protection Agency 1987). EPA's answer to this suggestion resulted in the first Rapid Bioassessment Protocols (RBPs) being published (Plafkin et al. 1989). RBPs were found to be faster, and thus cheaper, than previous monitoring techniques.

The RBPs have been used nationwide by a wide variety of federal agencies, several states, and other monitoring entities, and have improved over the years (Barbour et al. 1999). Idaho's BURP uses many of the RBP methods and makes modifications to improve consistency and reduce variability, to better fit Idaho's landscape and to meet DEQ's objective (Beneficial Use Reconnaissance Project Technical Advisory Committee 1999). A more detailed review of RBPs can be found in Idaho's 1998 303(d)-list report (Idaho Division of Environmental Quality 1998).

Figure 1: Major Hydrologic Basins and Hydrologic Unit Codes (HUCs) in Idaho



Purposes of the BURP Annual Work Plans

The purposes of BURP's annual work plans are to provide background information about BURP and list yearly objectives. Annual work plans also help improve consistency within the program and serve as a substantial portion of BURP's quality assurance/ quality control (QA/QC) program. The annual work plan gives the monitoring objectives for the year and the priorities for watershed and streams to be sampled. Any pilot projects planned for the year are described as well as any other special considerations that may be unique to a given year. Clark (2001) provided the first work plan for BURP to not contain the actual field methods used. The companion to this work plan is the *Beneficial Use Reconnaissance Program Field Manual for Wadeable (Small) Streams* (Beneficial Use Reconnaissance Program Technical Advisory Committee, 2002) which describes in detail the field methods used.

Beneficial Uses of Water in Idaho

The beneficial uses of water in Idaho are defined as "any of the various uses of water, including, but not limited to, aquatic biota, recreation, water supply, wildlife habitat, and aesthetics" (Grafe et al. 2002). These beneficial uses are listed in Table 1. Since 1993, the purpose of BURP has been to establish existing uses and help determine the status of these beneficial uses (McIntyre 1993; Idaho Division of Environmental Quality 1995; Beneficial Use Reconnaissance Project Technical Advisory Committee 1996, 1997, 1999).

Beneficial Use Reconnaissance Program (BURP) Support Status

To achieve its purpose, BURP collects and measures key water quality variables that aid DEQ in determining the beneficial use support status of Idaho's water bodies. This determination will tell if a water body is in compliance with water quality standards and criteria and if the water is meeting reference conditions. Reference conditions are those that fully support applicable beneficial uses with little effect from human activity and represent the highest level of support attainable. Reference conditions vary by bioregion. BURP provides the data used in the *Water Body Assessment Guidance* (Grafe et al. 2002). For more details on assessment technique and data handling policies, as well as other policies, see Grafe et al. (2002).

Currently, DEQ recognizes three categories of beneficial use support status: fully supporting, not fully supporting, and not assessed. "Fully supporting' means that the water body is in compliance with water quality standards and criteria, and meeting the reference conditions for all designated and existing beneficial uses as determined through the *Water Body Assessment Guidance* (Grafe et al. 2002). Not fully supporting refers to a water body that is not in compliance with water quality standards or criteria, or not meeting reference conditions for each beneficial use as determined through the *Water Body Assessment Guidance* (Grafe et al. 2002). The "not assessed" category describes water bodies that have been monitored to some extent, but are missing critical

information needed to complete an assessment. Not assessed can also mean that DEQ has not visited the water body and has no information on it.

Annual Work Plan, 2007 Field Season

Objectives:

The monitoring objectives for the 2007 field season are:

1. Monitor long-term reference trend sites,
2. Fill in data gaps with an emphasis on unassessed assessment units,
3. Continue probabilistic design strategy.

Several authors (Bahls et al. 1992; Grafe et al. 2002: Harrelson et al. 1994; King 1993; McGuire 1992, 1995) have pointed out the need for long-term monitoring data of least-impacted (reference) sites. The purpose of long-term monitoring efforts is to help determine the range of natural variation within a water body (Barbour et al. 1999). For several years, BURP monitoring has placed an emphasis on least-impacted (reference) conditions (McIntyre 1994; Idaho Division of Environmental Quality 1995; Beneficial Use Reconnaissance Project Technical Advisory Committee 1996, 1997, 1998, 1999).

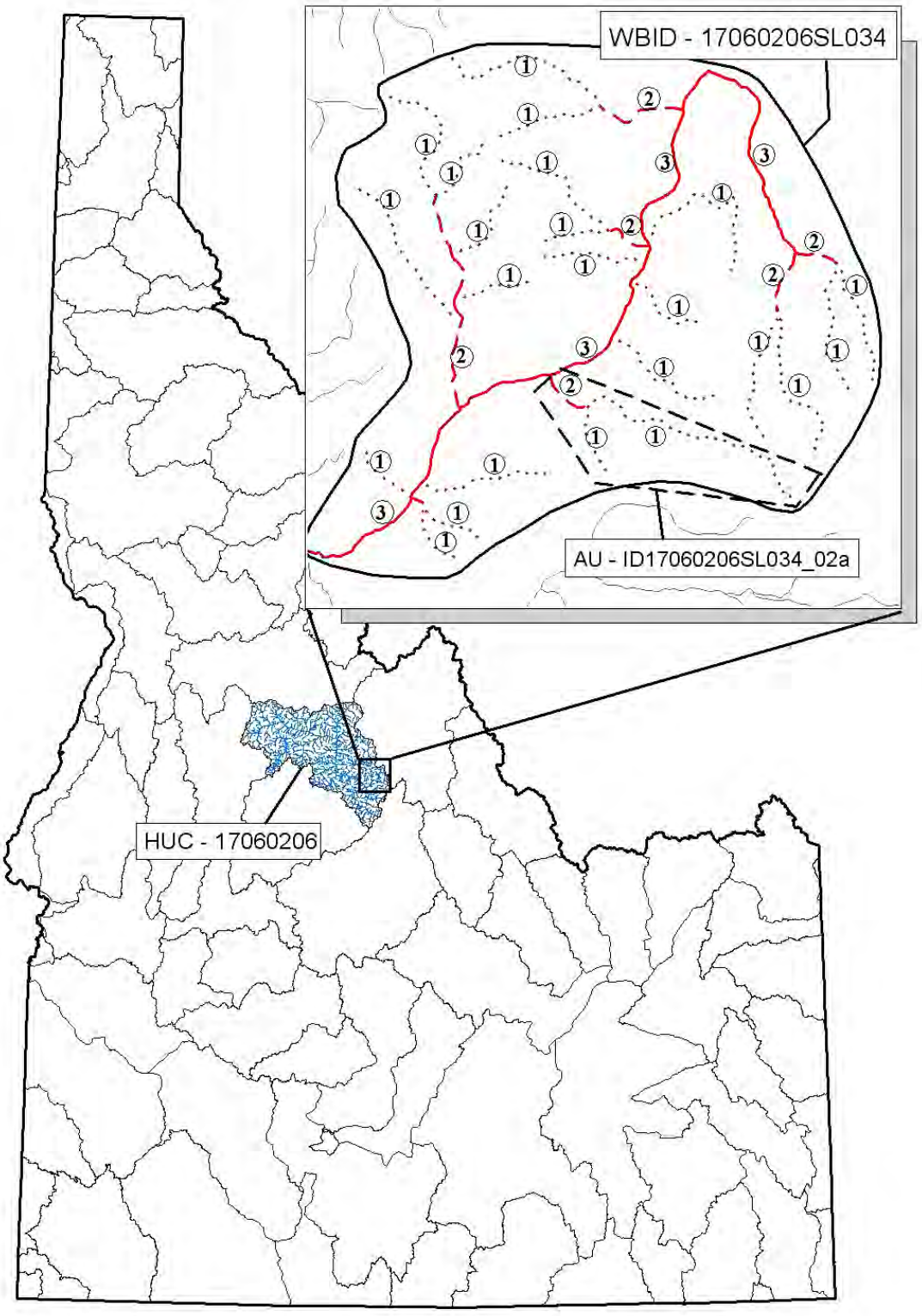
The DEQ monitoring strategy will tie into the EPA development of a Consolidated Assessment and Listing Methodology (CALM), which has the purpose of improving State monitoring and assessment programs (U.S. Environmental Protection Agency 2001). Six major parts make up CALM: 1) making decisions on attainment/non-attainment of State water quality standards (covering listing/de-listing decisions); 2) designing comprehensive State monitoring networks that support attainment decisions; 3) reporting and presenting data; 4) upgrading elements of State monitoring programs; 5) identifying causes and sources of impairment; and 6) addressing issues such as pathogens, nutrients, sedimentation, and fish advisories. The overall goal of the CALM is to both strengthen and streamline the water quality monitoring, assessment, and listing process for purposes of both sections 305(b) and 303(d) of the Clean Water Act. CALM will provide guidance on the monitoring data and assessment methods needed to support decision making, and on communicating water quality conditions to the public. The benefits of the CALM are, therefore, increased monitoring on all waters, improved decision making on water quality standards attainment and listing of impaired waters, and clearer communication to the public on water quality issues in each State and across the nation (U.S. Environmental Protection Agency 2001). From 1993 through 2003, DEQ attempted to representatively survey all streams within Idaho (the "census approach") and surveyed more than 5,000 sites. These sites represent about 75% of the 2,500 water body identification (WBID) units and 4,700 assessment units (AUs). A WBID usually represents a small watershed and is used in Idaho's water quality standards to geo-locate water in the state. The scale of a WBID is generally comparable to a 6^{th}-field (12-digit hydrologic unit code [HUC]) watershed, although some may be larger or smaller. The AU is a mechanism for grouping waters within a WBID into a meaningful unit for assessment purposes. Presently, most AUs are grouped based on stream order and land

use; however, DEQ staff members have the option to further delineate AUs based on additional information. Therefore, the number of WBIDs in Idaho is presently a fixed total, whereas the total number of AUs will continue to change based on current and future assessment decisions. Figure 2 illustrates the scale differences among HUCs, WBIDs and AUs. However, the census approach has proven to be too cost prohibitive to answer the questions posed to the States by the EPA, specifically, "what is the status of the State's waters?" In 2006 DEQ shifted the monitoring strategy from census surveying to a probability-based random survey that will attempt to answer this specific question posed by the EPA by using properly designed algorithms to develop a reliable estimate of the status of the State's waters.

DEQ uses stream order to define AUs within WBIDs to characterize comparable water body segments and ensure representative monitoring sites. In essence, AUs allow DEQ to compare streams and interpret site data. Presently, DEQ attempts to representatively monitor all AUs. Any one BURP reach should not represent more than one AU.

The U.S. Environmental Protection Agency has published a guide listing key elements of a State water monitoring and assessment program which serves as a tool to help EPA and the States determine whether a monitoring program meets the prerequisites of CWA Section 106(e)(1).0. They recommend that State programs include the following 10 elements: program strategy, objectives, sampling design, core and supplemental water quality indicators, quality assurance, data management, data analysis and assessment, reporting, evaluation of the program, and general support with infrastructure planning. EPA believes that State-monitoring programs can be upgraded to include all of these elements within the next 10 years. The Clean Water Act (CWA) 1067(e)(1) and 40 CFR Part 35.168(a) require that EPA award Section 106 funds to a State only if the State has provided for, or is carrying out as part of its program, the establishment and operation of appropriate devices, methods, systems, and procedures necessary to monitor and to compile and analyze data on the quality of navigable waters in the States, and provision for annually updating the data and including it in the Section 305(b) report.

Figure 2. Scale differences among HUCs, WBIDs, and AUs.



Because these elements have not been clearly defined in the past, current State programs show significant variability between States. EPA expects that State water monitoring programs will evolve over the next 10 years so that ultimately all States will have a common foundation of water quality monitoring programs that supports State decision needs. EPA expects that most States will employ an iterative process to fully implement a monitoring program that reflects the elements described in this document, and will work with States to identify annual monitoring milestones. States should develop, over time, a monitoring program addressing the ten elements listed above.

Special Considerations for the 2007 Field Season

The Natural Resources Conservation Service (2001, 2007 supplement) reports the following for streamflow for Idaho for the year 2007, as of April 1, 2007:

> Warm, dry conditions in March resulted in sharp declines in snowpack percentages compared to a month ago across all of Idaho and western Wyoming. Not only was there a significant lack of precipitation in most areas, much of what fell was in the form of rain and did not add to the snow water content except at the highest elevation sites. Additionally, the unusually warm temperatures actually caused snowmelt to begin and streams to rise, something that normally starts in April. Many basins showed a net overall decrease in snow water content from March 1 to April 1. This is extremely rare in the higher elevation basins, and has occurred only a few times in the previous 40 years! So while we were hopefully optimistic last month that a bountiful March would salvage the marginal year thus far, a warm and dry March removed all hopes of a near normal runoff season in 2007. Water users without the benefit of the above normal reservoir storage carried over from last year will see earlier and much lower summer streamflows this season, namely the Weiser, Bruneau, Lemhi and Lost River basins. Surface irrigators on the Owyhee, Payette, Salmon Falls and Oakley basins will have adequate supplies due to good carryover reservoir storage. Surface irrigation supplies will be just marginally adequate in the Boise, Little Wood, Upper Snake, Big Wood and Bear River basins. Most severe surface irrigation shortages are expected in the Big Lost and Little Lost basins; irrigators should plant and plan accordingly. These projections are based on the 50% Chance of Exceedance Forecast and given the likelihood of below normal precipitation in April based on a dry start in the first half of the month.
>
> Snowpacks are down 10 to 30 percentage points from last month! April 1 is normally the peak of the snow accumulation season, so this is really bad news throughout the region. The warm dry conditions during March started snow melting early and added very little additional accumulation, resulting in the unusually large drop in percentages. The snowpacks in most basins range from just 40% to 70% of average across Idaho and the upper Snake in Wyoming. The best snowpack is in the northern Panhandle area which received the benefit of the

major storm track last month, but even so, it is about 80% of normal overall. The Clearwater basin is next highest at 74% of average. The lowest areas are the Owyhee, Camas (Fairfield), and Little Wood, all less than 40% of average. All other basins including the Bear and Upper Snake are about 60–65% of average, except the Bruneau and Big Wood at about 52%, the Big Lost at 45%, and the Salmon at 70%. What a difference a year makes; the snowpack is only about half of last year in all areas south of the Clearwater.

Streams and Stream Sample Sites

The Boise, Coeur d'Alene, Idaho Falls, Lewiston, Pocatello, and Twin Falls DEQ Regional Offices will each have a sampling crew for the 2007 field season, as will the State Office. Contact information for the DEQ Regional Office BURP Coordinators is given in Figure 3.

Statewide, approximately 445 sites will be monitored. The BURP sites will include 26 samples collected from reference sites. The core reference stations are sampled on a regular basis to help establish a range of conditions and trends. Crews will typically sample lowland and rangeland areas earlier in the season and work upwards (increase elevation) toward forested streams to avoid problems encountered with early season runoff (snowmelt). The plan is to sample each stream at what are summer low flow conditions. A short narrative of what each DEQ Regional Office plans for the 2007 field season is given below. Table 2 contains a summary list of projected BURP sites and samples for the 2007 field season. Figure 3 also shows the approximate area of field operations for each office and coordinator. The field season will begin July 1 and end in September.

Boise Regional Office – In 2007, the Boise region intends to focus its efforts on collecting data from watersheds with up-coming quinquennial TMDL reviews. These watersheds include the North and Middle Fork Boise River, South Fork Boise River, the South Fork Salmon River, and the Middle Fork Owyhee River. In each case, we will generally survey previously unmonitored streams, in order to expand our knowledge of the watershed.

We will monitor nine randomly-selected sites, one of which will be repeated. This year, an unusually high number of sites will be rejected, mostly because of dryness.

We will visit five reference/trend sites, selected from the Region's rotating panel. Four of the sites will be identical to last year, with one new site being monitored. We will study a potential new reference site in the basin bioregion.

Where practicable, all sites will be electrofished and screened for bacteria.

The Region's field crew will participate in monthly lake surveys of Crane Creek Reservoir and Brownlee Reservoir. They will also assist with a pool survey of the Middle Fork Payette River

Coeur d'Alene Regional Office – The focus of the Coeur d'Alene Regional Office for 2007 will be reassessed streams within the North Fork Coeur d'Alene River HUC 1701030, South Fork Coeur d'Alene River HUC 17010302 and Priest HUC 17010215, which had BURP data collected on them through 1994 -1996. We will continue to monitor the randomly selected sites and reference/trend sites. An estimated 79 sites will be monitored this year.

Idaho Falls Regional Office – The Idaho Falls Regional Office plans to complete a total of 100 sites. We will be focusing on sites based on TMDL needs in the Upper Henry's HUC (17040202) and the Lemhi River HUC (17060204). In addition, we will continue with random survey by completing 9 random sites. We will also be continuing the reference/trend monitoring by completing 5 sites.

Bacteria will be collected on all sites deemed to have a possible impact. All sites will be electro-fished, where permissible by the Idaho Department of Fish and Game.

Lewiston regional Office (including the Grangeville Satellite Office) – In 2007, the Lewiston Regional Office will focus on revisiting AU's from the TMDL 5-year cycle; specifically, the South Fork of the Clearwater River (HUC #17060305) as well as un-assessed streams in the area. In addition, the Lewiston Regional Office will assess 8 random sites and three reference trend sites, plus a few other streams of interest such as Tammany Creek near Lewiston and Johns Creek on the Camas Prairie.

Pocatello Regional Office –For 2007, the Pocatello Regional Office will be focusing on eight randomly selected sites. Also, there are three reference trend sites in the Portnuef HUC 17040208 that will be visited. We may pursue looking for a few more reference trend sites in the Blackfoot and Salt subbasins and the Bear River Basin. We will begin to review streams in the Blackfoot HUC 17040207 in response to the TMDL 5 year review. Streams that haven't been monitored in the past five years will attempt to be sampled. Several streams in the Central Bear HUC 16010102, Bear Lake HUC 16010201, Middle Bear HUC 16010202, Lower Bear HUC 16010204, Curlew Valley HUC 16020309, Blackfoot HUC 17040207, Portneuf HUC 17040208 and Salt HUC 17040105 will be revisited since some of the last monitoring was done in 2002 on several streams in these subbasins. We will attempt to electro fish and have bacteria samples collected on monitored sites. The Pocatello Regional Office plans to monitor an estimated total of 60 sites in 2007.

Twin Falls Regional Office – The Twin Falls Regional Office (TFRO) has initiated a 5 year monitoring plan for the 9 hydrological units (HUCs) that it has responsibility over. Currently, the TFRO will be monitoring HUCs that are in the implementation phase of

the TMDL process. Monitoring is being done on these HUCs by order of date in which the TMDL was approved by the EPA.

In accordance to TFRO's 5 year monitoring plan, the BURP crew will be monitoring waterbodies in the Lake Walcott subbasin (HUC #17040209), Raft River subbasin (HUC #1704010), Goose Creek subbasin (HUC #17040211), and the Wood River subbasin (HUC #17040219).

TFRO will continue to monitor 5 reference/trend sites which include:

- East Fork Jarbidge River (HUC #17050102)
- Trout Creek (HUC #17040213)
- Goose Creek (at Thoroughbred Creek) (HUC #17040213)
- Goose Creek (at Indian Camp Spring) (HUC #17040213)
- Shoshone Creek (HUC #17040213)

TFRO will also continue to monitor randomly selected sites throughout the region. The number of sites will include 9 perennial streams and, as yet, an unknown number of ephemeral/intermittent waterbodies. TFRO plans to monitor approximately 60 sites during the 2007 field season.

State Office - The State Office will run a lakes monitoring crew as part of the 2007 National Lakes Survey. We will monitor 30 lakes throughout the State of Idaho. Sites were selected on a probability-based design intended to include a representative subset of the lakes that were included in the National Lake Eutrophication Study (NES), conducted by EPA in 1972.

For more information refer to: http://www.epa.gov/owow/lakes/lakessurvey.html.

Figure 3: Beneficial Use Reconnaissance Program Contacts for 2007 and Areas of Responsibility

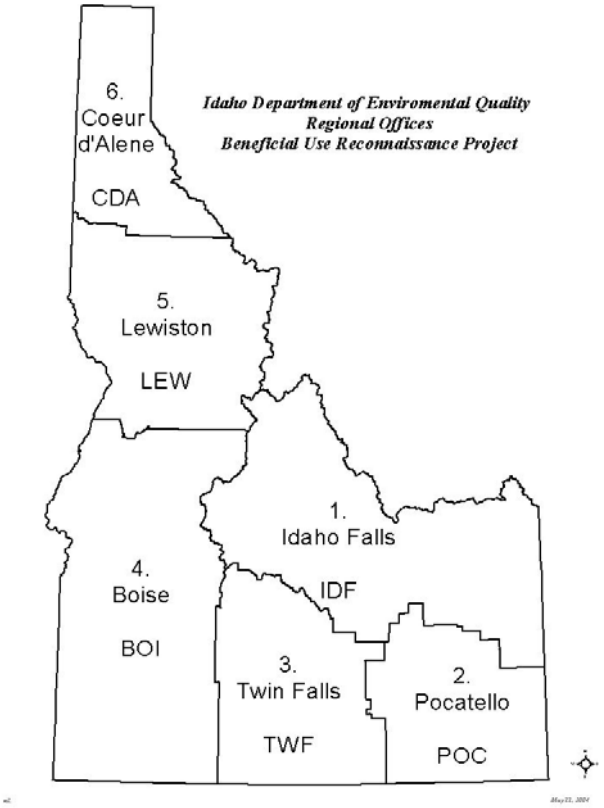


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Table 2. Estimated watersheds to be monitored during the 2007 Beneficial Use Reconnaissance Program (BURP) field season.

Regional Office	Watersheds	# Sites
Boise	Random Sites	9
	Reference/Trend	5
	17050111 North and Middle Fork Boise River	
	17050113 South Fork Boise River	
	17050107 Middle Fork Owyhee River	
	17060208 South Fork Salmon River	
		85
Coeur d'Alene	Random Sites	9
	Reference/Trend	5
	17010301 North Fork Coeur d'Alene River	
	17010302 South Fork Coeur d'Alene	
	17010215 Priest	
		75
Idaho Falls	Random Sites	9
	Reference/Trend	5
	17040202 Upper Henrys	
	17060204 Lemhi River	
		100
Lewiston	Random Sites	8
	Reference/Trend	3
	17060305 South Fork Clearwater	
		50
Pocatello	Random Sites	8
	Reference/Trend	3
	17040208 Portnuef	
	17040207 Blackfoot	
	16010102 Central Bear	
	16010201 Bear Lake	
	16010202 Middle Bear	
	16010204 Lower Bear	
	16020309 Curlew Valley	
	17040105 Salt	
	17040206 American Falls	
	16010203 Little Bear	
		60
Twin Falls	Random Sites	9
	Reference/Trend	5
	17040209 Lake Walcott	
	17040210 Raft	
	17040211 Goose	
	17040219 Big Wood	
	17040213 Salmon Falls	
		60
State Office	Lakes Survey	**30**

Pilot Projects

A pilot project is a way to try new methods and other ideas out on a trial basis and thus save resources until it is shown that the method should be integrated into BURP. Most pilot projects are done out of each regional office on a statewide basis.

For 2007, we will be implementing the TELEforms developed for fish data.

Program Innovations/Improvements

1. TELEforms.
   The Cardiff™ TELEform® system will be used for all BURP field forms. This is the third year with the TELEforms being in use. These forms allow for quick, easy, and accurate capture of data and subsequent conversion into digital format. The use of the TELEform® system has proven effective in reducing errors. This is an improvement in our QA/QC.

2. Centralized Training.
   This is the sixth year for the centralized training program. The program has been presented to the regional administrators as well as senior water quality staff and shown to be a top-level program that improved consistency and quality of the data gathered across the State for BURP. Centralized training is likely the most significant improvement in BURP QA/QC in recent years. In 2002 and 2003, field audits of the crews were very favorable and reflect the success of the centralized training. Centralized training will be conducted out of the Twin Falls regional office in 2007 with Sean Woodhead as the training coordinator.

3. Regionalized Field Keys
   As an aid in fish field identification, Don Zaroban developed a set of field keys for the BURP crews to use in 2003. These field keys were popular with the crews and the coordinators and will be used again in 2007. A general key was developed to help in the identification of commonly encountered fish families in Idaho. Then separate keys were done to cover the major parts of Idaho: Snake River drainages below Shoshone Falls, Snake River drainages above Shoshone Falls, and the panhandle. An addition for the 2006 field season was the invasive species identification pages added by Mark Shumar. These list the top 10 invasive species (both aquatic plant and animal) that pose a major threat to the State. The crews will be on watch for evidence of these species and should any be encountered, the crew must make a note of the location and send a sample to Mark Shumar.

4. Improved sample-tracking system.
   This is the third season for the BURPTrak system that was implemented last year to facilitate the tracking of samples and field forms. BURPTrak was used to varying degrees last year. After consultation with the regional coordinators, a

manual is being developed to help answer questions regarding the system. This year will also see an improved version of the system that allows for the creation and printing of reports that show where all samples and paperwork associated with a given site are located. This will greatly increase the efficiency of the sample processing at the various laboratories.

5 - Ambient Monitoring Plan

DEQ is drafting a Statewide monitoring strategy to incorporate targeted, census, and probabilistic sampling as a means to describe water quality conditions in Idaho. This strategy considers resources available to implement a comprehensive, long-term monitoring strategy. This strategy is being implemented in the 2007 field season by monitoring 50 randomly selected sites throughout the State. The EPA generated two lists for use in the 2007 field season. The first list gave the site locations for the primary randomly selected sites. This list was distributed to each region and each site evaluated to determine whether it was a viable monitoring site. If the site was not a viable site (as per site selection criteria determined by the Technical Advisory Committee and outlined in Beneficial Use Reconnaissance Program field manual for wadeable (small) streams 2002) then a site was selected from the second list of alternate randomly selected sites. For each site that was deemed not viable for monitoring, a BURP site ID was generated and the reasons why the site was not visited or sampled were documented. Figure 4 indicates those sites that were listed on the primary site list as well as those on the alternate site list.

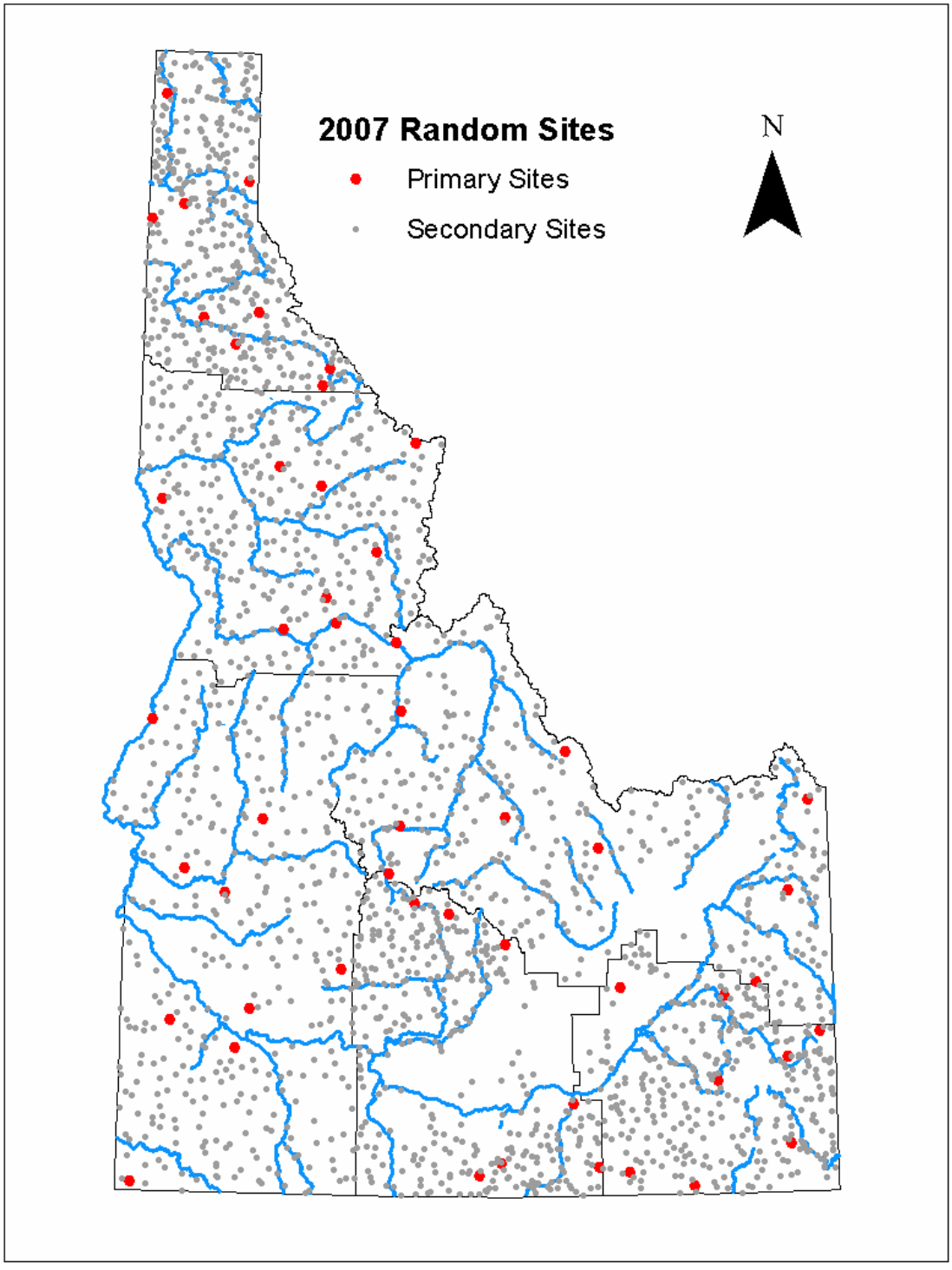

Figure 4: Random Sites Generated for the State of Idaho

Quality Assurance/Quality Control

The Quality Assurance program for BURP is critical to its success and has a direct relationship on the utility, reproducibility, and defensibility of the data obtained by DEQ's monitoring efforts. Quality control is included in every aspect of BURP, including:

- Preparing monitoring documents
- Educating and training BURP coordinators and crews (Beneficial Use Reconnaissance Program Technical Advisory Committee, 2002)
- Electrofishing training
- Crew training, which is now centralized for consistency
- Preparing, calibrating, and maintaining field equipment
- Taking samples
- Conducting independent field audits, writing subsequent reports, and following up on issues raised in the audits
- Identifying biological (macroinvertebrate, fish, algae, amphibian) specimens;
- Housing voucher specimens in a museum collection; checking individual field sheets
- Entering, analyzing, and managing data
- Writing reports and all other aspects of using the data.

Safety Considerations

DEQ considers crew safety the priority for all BURP monitoring. Major safety aspects of the monitoring are discussed in the *BURP Field Manual for Streams*. Some of the safety precautions are listed below.

- DEQ requires that all staff and crew members dealing with BURP have current certifications in first aid and CPR or receive training in both.
- During April 2007, a representative of Smith-Root, Inc® will train and certify personnel in electrofishing use and safety. Electrofishing safety documents are provided to each crewmember (Smith-Root, Inc. 1998).
- DEQ requires that vehicles be stocked with emergency items, including a first aid kit, fire extinguisher, and other safety items.
- Safety issues concerning working around water and using sampling equipment are discussed in the BURP Field Manual, the BURP Training Manual (Beneficial Use Reconnaissance Program Technical Advisory Committee 2006), and in training classes.
- Each BURP crew is responsible for their own safety. DEQ will provide the tools and training necessary for crews to conduct their fieldwork in a safe manner.
- The crews will also take appropriate measures to decontaminate waders, equipment, and vehicles so as not to transfer/introduce weed seeds, aquatic diseases, or other aquatic organisms from one water or watershed to another.

In addition to the items above, each regional office covers topics that are specific to the region.

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Table 3. List of Acronyms and Abbreviations

AU	Assessment Unit
BOI	Boise Regional Office
BURP	Beneficial Use Reconnaissance Program
CALM	Consolidated Assessment and Listing Methodology
CDA	Coeur d'Alene
CFR	Code of Federal Register
CWA	Clean Water Act (federal)
DEQ	Department of Environmental Quality, State of Idaho
EMAP	Environmental Monitoring and Assessment Program
EPA	Environmental Protection Agency
HUC	Hydrologic Unit Codes
IDF	Idaho Falls Regional Office
LEW	Lewiston Regional Office
POC	Pocatello Regional Office
QA/QC	Quality Assurance/Quality Control
REMAP	Regional Environmental Monitoring and Assessment Program
RBP	Rapid Bioassessment Protocols
SWIM	Surface Water Monitoring Strategy
TAC	Technical Advisory Committee
TWF	Twin Falls Regional Office
WBAG	Waterbody Assessment Guidance
WBID	Waterbody Identification Number